

## **5.0 MITIGATION AND UNAVOIDABLE IMPACTS**

The preferred alternatives, as a suite of management measures, will mitigate sea turtle bycatch and bycatch mortality, and overall, will have positive ecological impacts. While opening the NED (alternative A10) could have negative ecological impacts as compared to the no action alternative, the gear restrictions under alternative A10 are expected to significantly reduce the incidental capture of sea turtles and have positive impacts in regard to historical bycatch levels. The preferred alternatives could have adverse social and/or economic impacts. These alternatives would; open the NED, limit vessels with pelagic longline gear onboard, at all times, to possessing and or using only specific hook and bait types in the NED, and non-NED areas, as well require the possession and use of specific release and disentanglement gears.

### **5.1 MITIGATION MEASURES**

As described in the previous chapters in this document, the expected impacts of the preferred alternatives may range from minor to substantial. Some of the preferred alternatives may help mitigate the impacts of other preferred alternatives while also meeting the objectives of this rulemaking, the ESA, and the Magnuson-Stevens Act. For example, any adverse ecological impact of alternative A10 is expected to be mitigated by gear modifications in the NED and the other sectors of the fishery (alternative A3). Additionally, NOAA Fisheries attempted to mitigate the economic and social impacts as much as possible in designing the alternatives considered. For example, alternative A16 would require the possession and use of release and disentanglement gear meeting specific design standards. The design standards allow for construction of some of the equipment, subject to NOAA Fisheries approval, from material that is readily available and using skills that most fishermen likely possess. Further, the design standards were developed in cooperation with the fishing industry during the NED research experiment. The use of these gears may not only result in positive ecological impacts but may also reduce fishing costs by retrieving hooks. The potential savings from the retrieval of hooks may help to mitigate any negative impacts resulting from the preferred hook and bait alternatives. Additionally, anticipated increases in vessel revenues, from increased swordfish catches (by weight), may potentially mitigate decreased revenues stemming from reduced tuna catches and other costs associated with purchase of gear required to comply with new management measures.

### **5.2 UNAVOIDABLE ADVERSE IMPACTS**

As described above, in aggregate, the preferred alternatives are expected to have positive ecological impacts on sea turtles and other incidentally caught species. For species that are overfished (e.g. bigeye tuna), there could be potential minor increases in catches (by weight) resulting from the preferred hook and bait alternatives (A3 and A10). However, such increases would only have negligible adverse ecological impacts given that the U.S. catch of non-bluefin tuna constitutes a small percentage of international catches. Should catches of target species decrease under the preferred alternatives, minor adverse impacts may develop if fishermen increase effort to offset decreased catches; however these potential adverse ecological impacts

are uncertain and may not actually be realized. The preferred alternatives may have adverse economic and/or social impacts. The reasons for selecting the preferred alternatives are outlined in the previous chapters of this document. The preferred alternatives, including those with adverse impacts, are necessary to reduce the incidental take and mortality of threatened and endangered Atlantic sea turtles associated with the operation Atlantic pelagic longline fishery. The preferred alternatives are consistent with the HMS FMP, the Magnuson-Stevens Act, and the ESA. In considering the alternatives, NOAA Fisheries preferred alternatives that would minimize the adverse impacts while maximizing the positive impacts. Thus, any resulting economic or social impacts are unavoidable.

### **5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

The preferred alternatives would not result in any irreversible and irretrievable commitment of resources. In aggregate, the preferred alternatives are expected to reduce the incidental take and mortality of threatened and endangered Atlantic sea turtles in U.S. Atlantic fisheries consistent with the ESA. These alternatives are also expected to reduce the bycatch mortality of target and other non-target species consistent with the MSA, ATCA, and other applicable law. Alternative A10 would likely increase sea turtle takes over the status quo in the NED. However, this increase would be mitigated by alternatives A3 and A16. All of the preferred alternatives are likely to reduce bycatch mortality of incidentally captured species.

### **References Cited in Chapter 5**

No references cited.

